Remarks:

Claims 1-37 are in this case. All claims have been rejected.

Claims 1, 2, 4, 5, 8, 9, 14-25, 29, 30 and 33 have been rejected under 35 U.S.C. Section 102(e) as anticipated by United States Patent No. 6,297,072 issued to Tilmans *et al.* These rejections are respectfully traversed.

In the present case, each of claims 1 through 23 and 34-37 are directed to micro-electro-mechanical (MEMs) devices composed of a component layer, an actuator layer and at least one spacer. Significantly each of the claims calls for

> ...at least one resilient member coupled to the component layer and the actuator layer, wherein the component layer, spacer and actuator layer are held in laterally-aligned and vertically spaced relation by resilient force from the resilient member.

Claim 1 states the limitation expressly, and the claims dependent on claim 1 incorporate the limitation by reference.

Similarly, each of claims 24 through 33 are directed to a method of assembling a MEMs device by providing a component layer and an actuation layer, disposing a spacer between them, and the steps of:

> ...coupling at least one resilient member to the component layer and the actuator layer to hold the component layer, the spacer and the actuator layer together by resilient force.

The quoted limitation is express in claim 24 and incorporated by reference in the dependent claims.

The reason for these quoted limitations is set forth in applicants' specification. Conventional MEMs fabrication involves bonding the component layer and the actuator together. Such bonding typically requires high temperatures that can damage the delicate MEMs components (Specification, p. 3, line 21 *et seq.*):

> To retain the accurate lateral alignment of the component layer and the actuator layer once the alignment is achieved, often requires high temperature bonding processes such as soldering at ~100 - 300°C, epoxy curing at 100 - 200°C, polyimide curing at ~250 - 400°C, glass frit bonding (sometimes called glass solder bonding) at 400 - 700°C, or anodic bonding at 400 - 900°C. But the exposure of the MEMs components to temperatures even as low as ~150°C can cause undesirable distortion or curvature. If the components are mirrors, heat can also cause metallurgical reactions at the interfaces between the mirror metallization and the silicon substrate with consequent contamination of the mirror metal, creep and dimensional changes, formation of brittle intermetallic compounds, and long-term reliability problems. The bowing or curving of the mirrors generally results in non-focused or non-parallel light reflection and loss of optical signal. Accordingly, there is a need for an assembly process that can be carried out at ambient temperature without having to expose the MEMs device to high temperature.

The specification then teaches that this problem can be solved by a new structure and method wherein a component layer, a spacer and the actuator layer are held together by resilient spring members. The MEMs can be assembled at ambient temperatures -- avoiding thermal damage -- and, in addition, avoiding severe mismatch in coefficients of thermal expansion and associated bond failure frequently encountered in solder or epoxy joints (Specification, p. 4, lines 10-13; p. 9, lines 4-15):

> The CTE mismatch is elastically accommodated rather than causing permanent joint failures by repeated fatigue deformation.

There are no corresponding teachings in the cited reference to Tilmans *et al.* Tilmans very clearly and repeatedly teaches the conventional approach of bonding, specifically solder bonding at temperatures typically of the order of 300°C. See, for example, Col. 2, lines 42-57; col. 3, lines 47-55; col. 8, lines 62-65.

It is well established that for a prior patent to anticipate a claimed invention the patent must disclose each and every limitation of the claim.

In the present case, Tilmans *et al.* does not disclose a MEMs device wherein the components are "held in laterally -- aligned and vertically spaced relation by resilient force from the resilient member" as called for in claim 1 and its dependent claims. Nor does Tilmans *et al.* disclose the method of making a MEMs device by "coupling at least one resilient member to the component layer and the actuator layer to hold...[the layers] together by resilient force" as called for by claim 24 and its dependent claims. Accordingly, Tilmans *et al.* does not anticipate any of claims 1-37.

Claims 3, 6, 7, 10-13, 26-28, 31, 32 and 34-37 have also been rejected under 35 U.S.C. Section 103 as obvious in view of Tilmans *et al.* These rejections are also respectfully traversed.

For a patent to make obvious a claimed invention it must teach or suggest every limitation of the claim. Here Tilmans *et al.* teach only the conventional bonded MEMs structures. It is the problems of such structures that the present applicants seek to correct. Tilmans *et al.* is wholly devoid of any teaching or

suggestion of using a resilient member to hold in laterally aligned and vertically spaced relationship a MEMs component layer, spacer and actuator layer as called for in claims 1 and 24, the sole independent claims in this case. Accordingly Tilmans *et al.* does not make obvious any of claims 1-37.

In view of the foregoing it is submitted that this case fully complies with the provisions of 35 U.S.C. Sections 102 and 103 and is now in condition for allowance. Reconsideration and favorable action in this regard are therefore earnestly solicited.

Respectfully submitted,

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